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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,863	03/04/2005	Mark Thomas Johnson	NL 020836	5467

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EXAMINER

HO, BAO QUAN T

ART UNIT	PAPER NUMBER
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2609

MAIL DATE	DELIVERY MODE
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10/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/526,863

Applicant(s)

JOHNSON ET AL.

Examiner

Bao-Quan T. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.
2. The disclosure is objected to because of the following informalities: referencing to claims in the specification needs to be removed, and the specification needs to be labeled correctly, as shown below.

Appropriate correction is required.

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

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- (I) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-4 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Onodaka et al., US Patent 5,552,568 (hereafter referenced as Onodaka), in view of Yrjänäinen et al., US Patent 7,136,048 (hereafter referenced as Yrjänäinen), and in further view of Tsuda et al., US Publication 2002/0180673 (hereafter referenced as Tsuda).

Regarding claim 1, Onodaka discloses a touch sensitive matrix display comprising a matrix of pixels, an addressing circuit (X-scan Driver 8, fig. 1) for writing data to the pixels during addressing periods (display period, 6),

a sense circuit (coordinate detection controller 11, fig. 1) for sensing during sense periods (Detection mode, 6) a touching position on the display, and

a controller (CPU 4, fig. 1, col. 7 lines 27-29) for controlling the addressing circuit and the sense circuit to obtain the addressing periods and the sense periods being non-overlapping (shown in fig. 6), wherein the sense periods do not interrupt the addressing

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periods, and wherein substantially all pixels are addressed during each one of the addressing periods (fig. 6, col. 13 lines 28-36).

But, Onodaka does not specifically teach the pixels having an optical state which, when not addressed, is maintained substantially longer than one of the addressing periods.

However, Yrjänäinen teaches a display device to incorporate a bistable display layer that retains an optical state until electrically erased. Tsuda teaches a quiescent period lasting substantially longer than the addressing period (page 3, paragraph [0036]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify Onodaka's apparatus to incorporate a bistable display layer that retains an optical state until electrically erased, as taught by Yrjänäinen for the purpose of reducing power consumption discloses in col. 1 lines 58-60, during a quiescent period lasting substantially longer than the addressing period as taught by Tsuda for the purpose of reducing power consumption disclosed on page 3 in paragraph [0036].

Regarding claim 2, the combination of Onodaka in view of Yrjänäinen and Tsuda discloses a touch sensitive matrix display as claimed in claim 1. Onodaka further discloses in that the touch sensitive matrix display comprises select electrodes (y lines, fig. 1) and data electrodes (x lines, fig. 1), the pixels (picture cells, col. 10 lines 61-67) being associated with intersections of the select electrodes and the data electrodes, and in that the sense circuit comprises a first plurality of measurement circuits (x-coordinate

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detection section 15, fig. 1) coupled to the data electrodes for determining a first coordinate of the touching position, and a second plurality of measurement circuits (y-coordinate detection section 13, fig. 1) coupled to the select electrodes for determining a second coordinate of the touching position.

Regarding claim 3, the combination of Onodaka in view of Yrjänäinen and Tsuda discloses a touch sensitive matrix display as claimed in claim 1 and further discloses in that the controller is adapted for controlling the addressing circuit to be inoperative during a hold period (Onodaka: Detection mode, fig. 6) occurring between subsequent addressing periods and lasting substantially longer than the addressing period (Tsuda: page 3, paragraph [0036]), and for controlling the sense circuit to be operative during at least part of the hold period (Onodaka: Detection mode, fig. 6).

Regarding claim 4, the combination of Onodaka in view of Yrjänäinen and Tsuda discloses a touch sensitive matrix display as claimed in claim 3. Onodaka further discloses in that the controller is adapted for controlling the sense circuit to be operative intermittently during the hold period (detection mode) to obtain a plurality of separate sense periods during the hold period (Pulse output for detection, fig. 4 and 6).

Regarding claim 10, Onodaka discloses a method of touch sensing with a touch sensitive matrix display comprising a matrix of pixels (fig. 1), the method comprising writing data (x-scan data from x-scan driver, fig. 1) to the pixels during addressing periods (display period, fig. 6), sensing during sense periods (SP) a touching position on the display, and

controlling (CPU 4, fig. 1, col. 7 lines 27-29) the addressing and the sensing to obtain the addressing periods (display period, fig. 6) and the sense periods (detection mode, fig. 6) being non-overlapping, wherein the sense periods do not interrupt the addressing periods (shown in fig. 6), and wherein substantially all pixels are addressed during each one of the addressing periods (col. 13 lines 28-36).

But, Onodaka does not specifically teach the pixels having an optical state which, when not addressed, is maintained substantially longer than one of the addressing periods.

However, Yrjänäinen teaches a display device to incorporate a bistable display layer that retains an optical state until electrically erased. Tsuda teaches a quiescent period lasting substantially longer than the addressing period (page 3, paragraph [0036]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify Onodaka's apparatus to incorporate a bistable display layer that retains an optical state until electrically erased, as taught by Yrjänäinen for the purpose of reducing power consumption discloses in col. 1 lines 58-60, during a quiescent period lasting substantially longer than the addressing period as taught by Tsuda for the purpose of reducing power consumption disclosed on page 3 in paragraph [0036].

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6. **Claim 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Onodaka, in view of Yrjänäinen, in further view of Tsuda, and in further view of Rundel, US Patent 6,738,048.

Regarding claim 5, the combination of Onodaka in view of Yrjänäinen and Tsuda discloses a touch sensitive matrix display as claimed in claim 3, but does not specifically teach that the controller is adapted for controlling the sense circuit to be operative continuously during the hold period after a first touching event has been sensed.

However, Rundel teaches a controller is adapted for controlling the sense circuit to be operative continuously after a first touching event has been sensed (fig. 5, col. 5 lines 17-32, when a touch occurs 520 the touch sensor begins to be operative and will continuously operate in the loop 560 and 570 if touch sensors are still occurring).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify Onodaka's apparatus to have the controller adapted for controlling the sense circuit to be operative continuously during the hold period after a first touching event has been sensed as taught by Rundel for the purpose of minimizing power consumption of the display device (col. 2 lines 1-10).

Regarding claim 6, the combination of Onodaka in view of Yrjänäinen and Tsuda discloses a touch sensitive matrix display as claimed in claim 1, but does not specifically teach that the touch sensitive matrix comprises light or pressure sensitive elements in or associated with the pixels.

However, Rundel teaches a touch sensitive matrix comprising pressure sensitive elements associated with the pixels (col. 1 lines 25-42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify Onodaka's apparatus to have the touch sensitive matrix comprising pressure sensitive elements associated with the pixels by Rundel for the purpose of convenience without having a user bounded to using a stylus coupled to the display device to operate as an touching sensing utility, but instead touch sensing can be sensed by a user's finger or any type of objects as long as pressure can be applied to trigger the sensors.

7. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Onodaka, in view of Yrjänäinen, in further view of Tsuda, and in further view of Ng et al, US Patent 4,476,463 (hereafter referenced as Ng).

Regarding claim 7, the combination of Onodaka in view of Yrjänäinen and Tsuda discloses a touch sensitive matrix display as claimed in claim 1, but does not specifically teach that the sensing circuit comprises an impedance detector for detecting a change of an impedance of the pixels.

However, Ng teaches a sensing circuit comprising an impedance detector for detecting a change of impedance between a faceplate and an electrode (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify Onodaka's apparatus to have the sensing circuit comprises an impedance detector for detecting a change of an impedance of the pixels by Ng for the purpose of convenience without having a user bounded to using a stylus

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coupled to the display device to operate as an touching sensing utility, but instead touch sensing can be sensed by a user's finger or any type of objects as long as pressure can be applied to trigger the sensors.

8. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Onodaka, in view of Yrjänäinen, in further view of Tsuda, and in further view of Comiskey et al., US Patent 7,023,420 B2 (hereafter referenced as Comiskey).

Regarding claim 8, the combination of Onodaka in view of Yrjänäinen and Tsuda discloses a touch sensitive matrix display as claimed in claim 1, but does not specifically teach that said matrix display is an electrophoretic display.

However, Comiskey teaches a matrix display is an electrophoretic display (col. 1 lines 29-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify Onodaka's apparatus to have the matrix display be an electrophoretic display as taught by Comiskey for the purpose of good brightness and contrast, wide viewing angles, state bistability, and lower power consumption (col. 1 lines 29-34).

9. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Onodaka, in view of Yrjänäinen, in further view of Tsuda, and in further view of Ross, US Patent 5,838,336.

Regarding claim 9, the combination of Onodaka in view of Yrjänäinen and Tsuda discloses a display apparatus comprising the touch sensitive matrix display as claimed in claim 1, but does not specifically teach a signal processor for supplying input

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data to the addressing circuit in dependence on the touch position sensed to generate at least part of an image to be displayed on the touch sensitive matrix display.

However, Ross teaches a locator device to be sensed and notifies the CPU for supplying input data to the display processor where to generate at least part of an image to be displayed on the display screen (col. 3 lines 64-66 to col. 4 lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify Onodaka's apparatus to have the CPU supplying input data to the addressing circuit in dependence on the touch position sensed to generate at least part of an image to be displayed on the touch sensitive matrix display as taught by Ross for the purpose of fast response time of the user's actions and for the user to receive quick feedback.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao-Quan T. Ho whose telephone number is (571) 270-3264. The examiner can normally be reached on M-F, 7:30 am to 5:00 pm EST, alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian T. Pendleton can be reached on (571) 272-7527. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BTH


BRIAN PENDLETON
SUPERVISORY PATENT EXAMINER